

1. (amended) A system for providing page messages to radio paging units over a wide area through a plurality of transmission systems in which each of said transmission systems are associated with a predefined coverage area in said wide area, said system comprising:

Sub 1  
a controller having memory storing a routing database registering each of said paging units with one of said transmission systems, in which said controller routes page messages received by said system to each of said paging units through one of said transmission systems to which the paging unit is registered in accordance with said routing database, wherein the transmission system to which each of the paging units is registered represents the transmission system registered to the paging unit;

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a plurality of transmission systems, each of said transmission systems having means for sending page messages received from the controller to paging units, and means for sending periodically a system message having at least information which uniquely identifies the transmission system;

a plurality of paging units for receiving the system messages of at least one of the transmission systems when located in the associated coverage area of said one transmission system and receiving the page messages from the transmission system registered to the paging unit when the paging unit is located in the coverage area of the transmission system registered to the paging unit, in which one or more of said plurality of paging units represent one-way paging units;

each of said paging units having means for determining when the paging unit receives at least one of the system messages sent by one of said transmission systems different from the transmission system registered to the paging unit, and means, responsive to said determining means, for sending to the controller at least the information uniquely identifying the transmission system from said received system message sent by one of said transmission systems different from the transmission system registered to the paging unit; and

said controller having means, responsive to said sending means of each of said paging units, for updating the registration of the paging unit in the routing database to one of the transmission systems in accordance with the information received from the sending means of the paging unit, and sending to the paging unit at least information representing the updated transmission system registered to the paging unit, in which the

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~~paging unit receives, and operates the determining means of the paging means responsive to, the information representing the updated transmission system.~~

*B3 Sub C1*  
47. (amended) The system according to Claim 1 wherein one or more of said plurality of paging units represent two-way paging units.

*Sub C1*  
50. (amended) A system for providing page messages to radio paging units over a wide area through a plurality of regional transmission systems, said system comprising:

means for routing page messages to each of said paging units through one of said transmission systems to which the paging unit is registered, each of said paging units being registered to one of said transmission systems;

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a plurality of transmission systems having coverage areas in said wide area in which each of said transmission systems sends page messages received from the routing means to paging units located in their associated coverage area and sends a periodic system message having information which uniquely identifies the transmission system to paging units located in their associated coverage area;

a plurality of paging units capable of receiving page messages and system messages when located in the coverage area of at least one of the transmission systems, in which each of said paging units, when receiving at least one of the system messages sent from one of said transmission systems different from the transmission system to which said paging unit is registered, transmits to the routing means at least the information from the received system message identifying the transmission system, in which one or more of said plurality of paging units represent one-way paging units; and

said routing means in response to each of said paging units comprises means for re-registering the paging unit to one of the transmission systems whose coverage area the paging unit has entered in accordance with the information transmitted from the paging unit.

*B3 Cont Sub C1*  
53. (amended) A method for providing page messages to radio paging units over a wide area through a plurality of regional transmission systems comprising the steps of:

registering each of said paging units to one of said transmission systems, in which one or more of said paging units represent one-way paging units;

routing page messages to each of said paging units through one of said transmission systems to which the paging unit is registered;

sending routed page messages by each of the transmission systems to the paging units located in coverage areas associated with said transmission systems;

sending a periodic system message from each of said transmission systems having information which uniquely identifies the transmission system to one or more of said paging units located in the coverage area of the transmission system;

receiving at each of the paging units page messages sent from the transmission system registered to the paging unit when located in the coverage area of the transmission system registered to the paging unit;

receiving at least one system message at each of the paging units when the paging unit is located in the coverage area of at least one of the transmission systems;

re-registering each of the paging units to a different one of said transmission systems from the transmission system the paging unit is registered when the paging unit receives at least one of the system messages sent from one of said transmission systems different from the transmission system to which said paging unit is registered; and

sending to each of said paging units the transmission system to which the paging unit is re-registered.

55. (amended) A method for routing page messages to paging units through one or more transmission systems comprising the steps of:

receiving page messages, each of said page message having message data and identifying information of one or more of the paging units to receive the page message;

storing in at least one first database associating each paging unit to one of the transmission systems;

routing each page message received to one of the transmission systems in accordance with said identifying information of the page message and said first database;

storing in at least one second database information about each page message routed representing at least the paging unit associated with the page message in accordance with the identifying information of the page message, the message data of the page message, and the time the page message was routed;

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maintaining in at least one of the paging units one or more records of certain time periods; and

resending page messages to at least one of the paging units from said second database any message sent to the paging unit which having a time routed during said certain time periods.

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Sub 1

57. (amended) A controller for routing messages to radio paging units in a wide area paging system having one or more transmission systems with coverage areas in the wide area, in which the radio paging units can detect when they have moved into a new coverage area of one of the transmission systems and communicate to the controller information related to the transmission system of the new coverage area, said controller comprising:

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memory storing a routing database registering each of said paging units with one of said transmission systems;

means for routing page messages to each of said paging units through one of said transmission systems to which the paging unit is registered in accordance with said routing database, in which one or more of said plurality of paging units represent one-way paging units; and

means, responsive to the receiving a communication from the paging unit with information related to a coverage area, for updating the registration of the paging unit in the routing database to one of the transmission systems in accordance with the information received from the paging unit, and sending to the paging unit at least information representing the updated transmission system registered to the paging unit.

58. (amended) A radio paging unit for receiving messages from one or more transmission systems having coverage areas in which each radio paging unit is registered to one of the transmission systems for receiving paging messages from the